

SUB D1  
B1

supplying stock gas and a catalytic gas to the reaction chamber;  
heating the interior of the chamber to grow carbon fiber coils from the stock gas,  
wherein an exterior of the reaction chamber is substantially free of a magnetic field during the heating.

B2

21. (Amended) The method according to claim 20 including supplying the stock gas and the catalytic gas to the reaction chamber at respective velocities through a port formed in the reaction chamber.

SUB A02  
SUB 27

22. (Amended) The method of claim 21 including setting the position of the solid catalyst and the velocity of the stock gas, wherein the ratio of the velocity of the stock gas to a distance between an outlet of the port and the solid catalyst is set in a range of 10 to 10000.

B3

26. (Amended) An apparatus for manufacturing carbon fiber coils from a stock gas, which is subjected to thermal decomposition to generate solid carbon, and a catalytic gas, which promotes thermal decomposition of the stock gas, the apparatus comprising:  
a reaction chamber, to which the stock gas and the catalytic gas are supplied through a port;  
a solid catalyst located within the reaction chamber; and  
a heating device for heating the interior of the reaction chamber to grow carbon fiber coils from the stock gas, wherein the heating device produces substantially no magnetic field in the reaction chamber.

SUB 03

27. (Amended) The apparatus according to claim 26, wherein the solid catalyst faces an outlet of the port and is spaced from the outlet by a distance, and the stock gas is supplied to the reaction chamber at a certain velocity, wherein the ratio of the velocity of the stock gas to the distance is in a range of 10 to 10000.

B4 SUB 35

29. (Amended) The apparatus according to claim 28, wherein the catalyst contains microcrystalline of nickel.

B5 31. (Amended) The apparatus of claim 30, wherein the catalytic gas contains at least one of sulfur compound and phosphorus compound, and the sulfur compound and phosphorus compound include thiophene, hydrogen sulfide, methylmercaptan, and phosphorus trichloride.

B6 D 34. (Amended) The apparatus according to claim 32, wherein the heating device includes a heating chamber surrounding the periphery of the reaction chamber, and a heated fluid is delivered to the heating chamber.

sub 04 B7 37. (New) A method of manufacturing carbon fiber coils comprising:  
placing a solid catalyst within a reaction chamber;  
supplying a stock gas and a catalytic gas to the reaction chamber, wherein the stock gas is supplied through the gas supplying port at a velocity, wherein the ratio of the velocity to the distance is set in a range of 10 to 10000;  
applying a DC voltage to the solid catalyst to negatively charge the solid catalyst; and  
heating the reaction chamber to a temperature in a range of 700 to 830 degrees Centigrade to grow carbon fiber coils from the stock gas using a heating device that generates substantially no magnetic field around the reaction chamber.

REMARKS

Upon entry of this Amendment, which amends claims 19, 21, 22, 26, 27, 29, 31 and 34 and adds claim 37, claims 19-37 remain pending.

Claims 19-36 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Claims 19-22 and 25-34 have been rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent Application No. 2,248,230.

With respect to claims 19-36 being rejected under 35 U.S.C. § 112, the Examiner listed several concerns. In particular the Examiner stated that "claims 23, 24, 35, and 36 appear to contradict the magnetic-free requirement", and requested clarification. Applicants respectfully disagree that claims 23, 24, 35, and 36 contradict the magnetic-free requirement for the following